

## Air Quality Index

The Air Quality Index (AQI) measures and reports on the six most common urban air pollutants. This pamphlet explains what these pollutants are, what are the major sources of each and the potential effect each has on the environment and on human health. The Air Pollution Index (API), the basis of an alert and control system to warn of deteriorating air quality, is a sub index of the AQI.

The AQI helps you to understand air pollution, how to protect yourself and how to do something about it. Our automatic air monitoring stations are constantly analysing the air and reporting their findings. We share these findings with you in news and weather reports.

## Air quality advisory

In Ontario the Ministry of the Environment and Environment Canada jointly issue air quality advisories when widespread elevated air pollution levels are forecast due to ground-level ozone. The advisories, introduced in 1993, build on the existing Air Quality Index system and cover southern Ontario (this program was extended to North Bay and Sudbury in 1994). During the advisory, people are encouraged to limit activities which contribute to air pollution, such as unnecessary trips in the car, using their gas-powered lawn mowers, etc. In other words, they are asked to *Spare the Air*. People with respiratory problems are also encouraged to be aware of air pollution and limit their outdoor activities if necessary.

## The Air Quality Index at a glance

| Index/category      | CO<br>Carbon monoxide  | NO <sub>2</sub><br>Nitrogen dioxide   | SO <sub>2</sub><br>Sulphur dioxide                               | SP<br>Suspended particles  | SO <sub>2</sub> + SP<br>(as measured by the API)                       | TRS<br>Total reduced sulphur                                 | O <sub>3</sub><br>ozone  |
|---------------------|--|---|--|--|--|--|--|
| 100 +<br>Very poor  | Increasing symptoms in non-smokers with heart disease; blurred vision; some clumsiness | Increasing sensitivity for asthmatics and people with bronchitis                | Increasing sensitivity for asthmatics and people with bronchitis | Increasing sensitivity for asthmatics and people with bronchitis | Significant effects for asthmatics and people with bronchitis          | Severe odor; some people may experience nausea and headaches | Serious respiratory effects, even during light physical activity; people with heart/lung disorders at high risk; more vegetation damage  |
| 50 - 99<br>Poor     | Increased symptoms in smokers with heart disease                                       | Air smells and looks brown. Some increase in bronchial reactivity in asthmatics | Odors; increasing vegetation damage                              | Decreased visibility; soiling evident                            | Increased symptoms for people with chronic lung disease                | Strong odor  | Sensitive people may experience irritation when breathing and possible lung damage when physically active; people with heart/lung disorders at greater risk; damage to some plants |
| 32 - 49<br>Moderate | Blood chemistry changes, but no noticeable impairment                                  | Odor  | Damages some vegetation  | Some decrease in visibility                                      | Damages vegetation (i.e. tomatoes, white beans) due to sulphur dioxide | Odor   | Respiratory irritation in sensitive people during vigorous exercise; people with heart/lung disorders at some risk; damages very sensitive plants                                  |
| 16 - 31<br>Good     | No known harmful effects   | Slight odor   | Damages some vegetation in combination with ozone                | No known harmful effects   | No known harmful effects   | Slight odor  | No known harmful effects   |
| 0 - 15<br>Very good | No known harmful effects   | No known harmful effects  | No known harmful effects   | No known harmful effects   | No known harmful effects   | No known harmful effects                                     | No known harmful effects   |

### Note!

The Ministry of the Environment (MOE) now provides AQI readings for your area, updated once a day, on its home page. Visit us at [www.ene.gov.on.ca](http://www.ene.gov.on.ca). Daily AQI values are also available from the MOE by calling (416) 246-0411 in Toronto or toll free at 1 800 387-7765 (English) or 1 800 221-8852 (French).



### Please note:

For more information on air quality issues or additional copies of this brochure, please phone the Public Information Centre at its new number (416) 325-4000 or toll free (from outside the 416 area) at 1 800 565-1923. For more information on Drive Clean call 1 888 758-2999 or visit the web site [www.driveclean.com](http://www.driveclean.com).



Automobile emissions are the primary source of this colorless, odorless, tasteless gas. CO is a problem if it enters the blood stream – it may reduce the delivery of oxygen to the organs and tissues of the body, especially the brain. Some of the first symptoms of CO poisoning are blurred vision and clumsiness. These occur at very high concentrations. However, lower concentrations can cause discomfort for people with heart or lung disease.

**CARBON  
MONOXIDE  
CO**

This toxic, irritating gas is emitted by all combustion processes (e.g. heating systems, cars, trucks). In combination with water, it can form acid rain. It helps form smog and acid aerosols. Acid aerosols are very, very small particles with NO<sub>2</sub> attached to them. They can be inhaled and cause lung irritation. In general, nitrogen dioxide can irritate the lungs and lower resistance to respiratory infection. It also can damage materials (i.e. corrosion and fading) and vegetation.

**NITROGEN  
DIOXIDE  
NO<sub>2</sub>**

This colorless gas smells like burnt matches. Health effects associated with exposure to high concentrations of SO<sub>2</sub> include breathing discomfort, respiratory illness and aggravation of existing lung and heart disease. People with asthma, chronic lung disease or heart disease are the most sensitive to SO<sub>2</sub>. It also damages leaves on trees and agricultural crops. In addition, SO<sub>2</sub> (along with NO<sub>2</sub>) contributes to acid rain (which has a number of environmental effects including lake acidification, corrosion and haze). Like nitrogen dioxide, SO<sub>2</sub> helps form acid aerosols, which are a lung irritant.

**SULPHUR  
DIOXIDE  
SO<sub>2</sub>**

These are small particles of solid or liquid matter that stay suspended in the air in the form of dust, mist, aerosols, smoke, fumes, soot, etc. Particles less than 10 microns in diameter (also called inhalable particulates, or PM<sub>10</sub>) can penetrate deep into the lungs and contribute to lung disease. Corrosion, material soiling, vegetation damage and visibility reduction are additional effects of suspended particles.

**SUSPENDED  
PARTICLES  
SP**

These sulphur-containing compounds (such as hydrogen sulphide) come from industrial sources such as pulp and paper mills, coke ovens and refineries. They also come from natural sources, such as sulphur springs. TRS compounds are not normally considered a health hazard; however, they are the primary cause of odors (rotten egg smell). Very high concentrations may cause nausea or headaches.

**TOTAL REDUCED  
SULPHUR  
TRS**

This colorless gas with a strong smell is produced by the sun's photochemical action on hydrocarbons and nitrogen oxides. It is the biggest part of photochemical smog. Ozone irritates the lungs and can make breathing difficult. Exposure to high concentrations of ozone results in chest tightness, coughing and wheezing. It is responsible each year for agricultural crop loss in Ontario and causes noticeable leaf damage. More than 50 per cent of Ontario's ozone comes from sources in the United States.

**OZONE  
O<sub>3</sub>**

**NOTE:** ground-level ozone (O<sub>3</sub>) and the thinning ozone layer are often confused. Ozone in the stratosphere (20 to 50 km above the Earth's surface) is naturally created and screens us from harmful ultraviolet radiation. Ground-level ozone (described above) is harmful to plants, animals and humans.

CA20N  
EV  
-Z027



A few things are as important today as the air we breathe. That's why the Ministry of the Environment constantly monitors the levels of air pollutants in Ontario and shares this information with you.

# Ontario's Air Quality

**EXCELLENCE**



Ontario

PIB5 630e-01  
3M/99

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